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30A Supply Monitor with Integrated 300µΩ Sense Resistor Simplifies Board Level Energy Measurements

MILPITAS, CA – September 6, 2016 – Linear Technology Corporation introduces the LTC2947 power and energy monitor for 0V to 15V DC supply rails. Most power and energy monitoring ICs use an external sense resistor to measure current. However, choosing a sense resistor is not an easy task, especially when dealing with high currents, where available sense resistors can dissipate too much power, occupy a lot of board space or have a large impact on measurement accuracy. The LTC2947 integrates a 300µΩ temperature-compensated sense resistor to alleviate these concerns, providing users with a simple 24mm^2 solution that provides up to 1.2% accurate energy readings at up to ±30A. When measuring a full-scale current of 30A, the voltage drop over the LTC2947's integrated sense resistor is only about 9mV, causing power dissipation of approximately a quarter watt or about 10mW when measuring a 6A rail. In addition to low power dissipation, the LTC2947 offers high dynamic range due to its low offset of only 6mA (or 1.8µV).

Three integrated $\Delta\Sigma$ ADCs and an internal or external precision time base (crystal or clock) enable accurate measurement of multiple parameters, including current, voltage, power, charge, energy, temperature and time. All digital readings, including minimum and maximum values, are stored in registers accessible by a selectable I^{2}C or SPI interface. An alert signal notifies the host when measurements exceed configurable warning thresholds, eliminating burdensome polling. The LTC2947 provides access to all the necessary parameters to accurately assess and manage board level energy consumption, and its rail-to-rail operating range is ideal for monitoring current levels during short-circuit or blackout situations without additional circuitry.

Specified over the commercial and industrial temperature ranges, the LTC2947 is offered in a 32-lead 4mm x 6mm QFN package. 1,000-piece pricing starts at $5.95 each. Device samples and evaluation circuit boards are available online or from your local Linear Technology sales office. For more information, visit www.linear.com/products/power_monitors.

Photo Caption: Energy, Power, Charge, Current and Voltage Monitor with I^2C or SPI Interface

Summary of Features: LTC2947

- ±30A Current Range with 300µΩ Integrated Sense Resistor
- Monitors Current (1.0%), Voltage (0.5%), Power (1.2%), Charge (1.0%), Energy (1.2%)
- 0V to 15V Rail-to-Rail Input Range
- Three $\Delta\Sigma$ ADCs for Instantaneous Multiplication of Voltage & Current
- Internal ±1% or External Time Bases
- Continuous Scan & Snapshot Modes
- Maximum & Minimum Value Tracking
- I^2C or SPI Configurable Interface
- 32-Lead 4mm x 6mm QFN Package

Pricing shown is for budgetary use only and may differ due to local duties, taxes, fees and exchange rates.

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, μModule® subsystems, and wireless sensor network products. For more information, visit www.linear.com

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